MISSOURI BOTANICAL GARDEN
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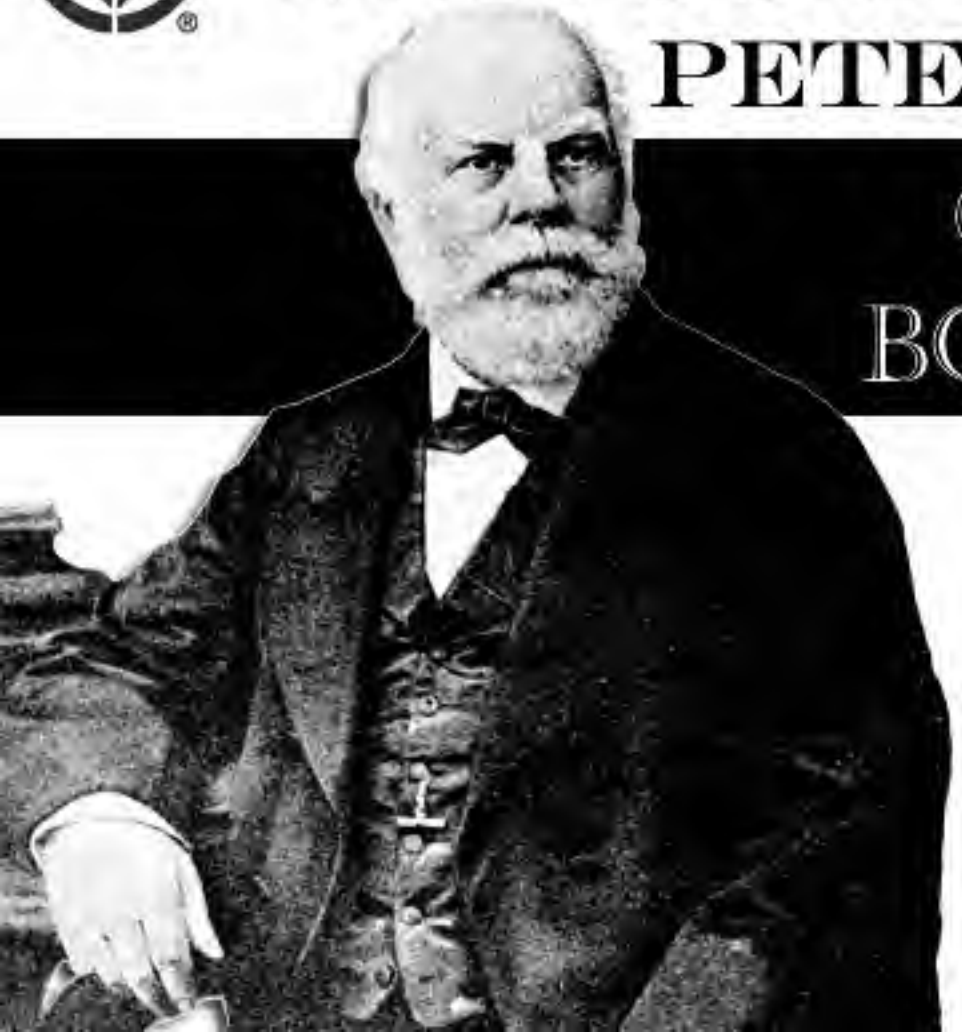

GEORGE ENGELMANN BOTANICAL NOTEBOOKS

Pagination Note:
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Sierra di Sonoyita and south
east towards Sta Magdalena, Sonora; where it is named
Pima or Pimita
for a white August with flowers and fruit.

2 ~~This is~~ Stems 8 to 18 or more
from the same base, 8–10 feet high; often
as early
many plant, together forming dense
clusters, and covering quite a space
of ground, not rarely associated
with C. Thurberi, Stems consist of
2 to 4 articulations, of 4 or 5 inches
Diameter, lower part entirely
denudated of spines. Spines of ~~that~~ the sterile parts
~~part of the plant, such bearing~~ or young plants
~~flowers~~ 5–7 not over 3 or 4 lines
areolae
long; ~~spines~~ of flowering part to maturity
of plant 30 radiate (covered with dirty white 2–3 lines
irregularly fascículated distant from one another
10 to 25 in number and from ~~4 to 6~~ 4 inches long, spines ...
flexuous & pendulous, flowers somewhat
hidden by their reddish gray beard and the tube wholly
1½–1¾ inches long; ~~expands~~ without but downward
olivaceous by them it
any wool in the axils; ovary
triangular, acute, upper one
lanceolate, petals dirty flesh colour;
stamens numerous, few; heavy
the top of ovary and lowest part of
tube free; stigmata 5–6 filiform-
brown
fan-shaped, fasciculated, exactly like
those of C. Thurberi and Gigantea
or Ech. Emoryi ~~Wislizeni~~. Berry
scarlet, about 3 or 4 l. in diameter;
seeds very similar to those of C. gigantea
but larger 1.0 – 1.2 lines long;
albumen hardly any; cotyledons
foliaceous, incumbent
or sometimes oblique, Germination

exactly like that of C. Thurberi & Gilgianus
very plant (globose) with very short
spreading erute coty ledons, but
very soon elongated while both
spines mentioned above
semi globose fro a long time

This plant evidently belongs to
the Genus Pilocereus as at present
distinguished. It is characterized
by a distinct Cephalium which
produces the flowers, often and is
covered with hair, wool or bristle-
like spines, distinct from the more
robust spines of the not flower
sterile part of the plant which does not bear
flowers. flowers said to be
always small, with few series
of sepals and petals, berries small
and (short globose) coty ledons of
the embryo. I have not seen
enough of these plants to
form an opinion whether they
ought not to form separate
genera from Cereus or have
to be reunited with this large Genus.
Our species, by the arrange-
ment of its spines and by its
flowers and fruit undoubtedly
must be classed here. While
the fact the shape of the
embryo does not at all come
up to the type as described in the
books. On the other hand the
plant in size & shape and
even in the slender spines
approaches so near to C.
C. Thurberi the flowers of
which however are very

District, and unites it with C.
grijsanteus.

Dr P. Schottii is very closely allied
to P. scoparius discovered by Dr Boelger
near Vera Cruz, this however is
a Canyon plant, 20-25 feet high from a tropical climate
It has a stem 1 foot or more in diameter, long
branches 2-3 inches thick, with 12 to 15 ribs on the stem parts
~~where they become flowering~~, and 6 short spines,
in each areola; but the flowerbearing
branches have 20-25 ribs and the closely arranged
areolae bear 5-12 bristles of an inch in length. flowers reddish
small, berry scarlet of the size of
a hazlenut. ~~The principal difference~~
as far as I can make out without
an examination of the flower & fruit
consists in the Canyon size of the
plant, the more distant areolae and
the shorter and less numerous bristles.

This is from San Diego and is no doubt = Parry's plant, but seems different from the Rest of Baylow which grows on the eastern slope of the mountains

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Opuntiae coll by Aschott

~~[illegible]~~

Op. occidentalis E&B. see pag 89

erecta robusta, articulis grandibus ovatis rhomboideis ve ovatis spississimis areolis ~~distantibus~~ remotis striminis setosis, aculeis ja 6-4 robustioribus rectiusculis, deliciosis interjectis; ovario obovato subgloboso, areolis 16-20 notato, ~~sepalis~~ 15-18 ~~oblongis~~ dilatato ovatis cuspidatis petalis 8 (?), late obovatis obtusis, ~~obtusulatis~~ erosis fluvis auntiacisque supe cuneatis v. stylo crasso ~~supra~~ valde donato stigmatibus sub 8-10 erectis spatulis

Sea beach near San Diego in Sept & Octob. — Very abot one inch long & a little less in Diamt at top; flower about 3 inches Diameter.

Dr Parry gives his plant greenish yellow flowers with narrower, spathulate petals. Are there different species? It grows on the Hillsides in Patches —

Op. humilis Schott = (O. purpurascens) s. O. stipendula Rio Grande

Op. ? violacea Schott South range of the Organos Mountains near Fort Bliss erect with 1-5 brown or purple long spines joints of the purplish. = O. phaeacantha ?

Otter patula = O. occidentalis

Opuntia patens Schott

see pag 319 (321

it is no doubt same as Bigelows plant

erecto-patula grandis, articulis
obovatis, ~~globosis~~ areolis remotis setis
flavidis tenuissimis ~~elongatis~~ 1-3 capillaceis, aculeis paucis (1-2)
albidis basi ~~pallidis~~ rufis
compressis, tenuissimis setaceis
1-3 supe adjectis, floribus
~~subsolitariis~~, ovario ovato pulvillis
~~areolis~~ 20-25 ~~25-30~~ fulvo villosis, ~~setis~~ et
fusco-setosis stipato, subinde
~~spinescente~~, aculeato v. lepidis
setaceis cuspidatis ~~sub~~ 10-12
petalis 8(!) ~~&~~ obovatis obtusis
subintegris.

Mountain valleys of Cañada Pasquale and Santa Isabel, western Slope of the Sierra Nevada, not far N. E of San Diego, Covering often extensive patches of Land

Data very incomplete. A Schott says the joints are similar to O. occidentalis but thinner, less fleshy; ~~plant~~ 3-4 feet high. — Areolæ with ~~numerous~~ (yellow bristles) 1½-1½ inches distant, large spines yellowish white ~~brown~~ at base, smaller ones whitish. Ovary ½ inches long, ~~globose~~ ½-1 inch in diameter, flowers 3 inches ½ inch in diameter, pulvilli of Ovary pretty equally distributed, not so much congregated about the top as in O. occidentalis. Petals in the dry specimen before me yellow and brick red, with ~~a narrow~~ an entire margin. —

This may be Bigelows Ro Mojavensis which however is said to be prostrate and has much shorter uneven bristles. & much shorter spines O. prostrata looks similar but is prostrate and

has also stouter spines & bristles.
Could it be O. angustata? It more
probably belongs to O. occidentalis with
which it has it thin bristles in common.

Op. arcuata = O. basilaris E&G
Dividing ridge of the Californian Cordillera
and Salow Gila valley, May 1855
see pag 258

Opuntia Emoryi E =
(O. glauca Hott) Prostrate, joints
proliferous near base, plant
12-18 inches high — young spines
straw colored, purplish, old ones
brownish grey — plant dull greyish
green.

Spines 12-20, 12-15 l. long
Corolla sulphur yellow, tinged with
purple, August & Sept.

Skeleton of a loose ligneous
reticulate texture, soon decaying
Desert of the Colorado
Many with 35 to 50 areolae,
covered with thick wool at summit
flower bud with matted spines,
fruit dry 1½ inch long densely covered with spines
5-8 l. long seed 2-2½ l. long, regular
bucket shape Commissure hardly discernible as in O. rhodantha
This plant is very similar to
the El Paso plant, but fruit &
plant larger, covered with more
depressed areolae, and spines not at all
as stout
S

consistence distinct enough below
not at all above

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ramis subvertis villosis (Schott)
adscendentibus

Opuntia serpentina E (see pag 91)

♀ (n.91) floribus flavis extus rubello tinctis,
ovario depresso pilosillis sub 20 areolatis
stipato, sepalis sub 10 late obovatis breviter
cuspidatis, petalis sub 5 obovatis integerrimis, mucronatis
stigmatibus 8 adpressis, bacca flavida

gregarious not so common

♀ (n.91) Dry hillsides near San Diego,
often (Schott O. prolifera,) generally
nearer the sea coast. × stems 1-1½ inches in diameter
4-5 feet high (Schott) or procumbent "
(Schott) — " subprostrate (Parry) joints 6-12
inches long, divaricate, snake like", ¾-1½ inches thick,
spines ¼ to ¾ inches long, sheaths
light yellowish or rusty; lowest ones closely adpressed
A single flower was collected by Mr Schott. upon the branches
late
— October from which the description is taken. Flower straw
very depressed, obt & l. high, ½ inch wide
corolla with 20 areolae, bearing tufts
yellowish wool yellow × bristles and
5-7 reddish brown thorns spines f 2-4 l. long
On the crown Sepals externally ♀ purplish, yellowish green tinged with
even the lowest ones usually obtuse
or short cuspidate; petals (corolla cup shaped) obt
yellow on the inner
surface, rounded. red at tip, rounded.
tufts 9 l. long, stigmata each (green?)
2 l. long.

Fruit narrow shaped, very deeply
and broadly umbilicate, yellowish brown,
very spinous and "long woolly" (Parry)
Remains of flowers rather permanent
on the fruit.

† on the erect branches the joints are
somewhat ventricose, but much less so than

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Op. echinocarpa (K & S) = O. stenilis Schott. most arid deserts, western parts of Pimeria alta — & both sides of the lower Colorado.

Opuntia prolifera E. pag 91. (O. Corallina Schott)

(pag 375) which by Mr Schott are likened to ; approachable coral reefs Stems 2–4 inches thick & 3 to (about 6–7 Schott) 10 feet high † the jointed joints 3–6 inches long, 1½–2 in diameter, ~~tuberculate~~ ~~oblong~~ ~~with an obtuse~~ ~~tubercle~~ at the end of the branches The younger ones easily break off & adhere with their well barbed spines to the skin or clothes of the passing ‡, & become very annoying thereby. The tubercles are † about ½ inches long arranged in 5 or 8 spirals, areola oval, somewhat immersed with very distinct transverse ridges & strigose below at the upper edge. Spines very variable ; always all sheathed ; in a specimen before me there are 7–8, radiating spines, the upper one equal to the single central sp, the lower one somewhat shorter, with a few still smaller additional ones ; in other plants the upper as well as the lateral spines are (counting 10 or reduced in size) They furnish no very good character in the whole genus, and especially not in the cylindric species

† forming a reticulated hollow ligneous tube (skeleton) with small short meshes which finally (in old plants) become obliterated.

‡ a person

† About twelve narrower barbed

12–14 l. br. (6–8 l.)

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Flowers red, with dark, 3 diam. form about
1/2 inches in diameter, Fruit said to
be spinulose — but always
abortive as Dr Parry has often satisfied
himself, and professors, Shears
the name.

The plant somewhat resembles
O. arborescens, but is easily
distinguished by the stouter joints
short tubercles and spinulose fruit
The affinity with Op. Bigelovii and O. fulgida
is much closer and our sketch
is a representation of these plants
(from the mountains east of Mt Colorado) a little south of the
Gila
near the California coast, just
as O. serpentina represents O.
echinocarpa of the Colorado valley
Op. Bigelovii has still shorter and
more turnid joints with yet smaller
ovate tubercles, straw-
colored spines &c

Opuntia Whipplei Engl & B. caule
(s. arbuscula patula subprocumbente) ramosissimo
divaricato ramosa, articulis cylindricis,
tuberculis ovatis depressis conspersis
pedicellis plurimis lanuginosis vix setosis,
areolis 1-4 majoribus brevibus
cinereo s. straminee vaginatis,
1-4 majoribus divaricatis, superiore deflexo
longiore, minoribus 2-8 patulis ad
inferiorem globbellum marginem deflexis
s. undique radiantibus; floribus
purpureis rubro, ovario ovato tuberculato pulvillis
20-30 setosis - setis straminea

102 August 1856

et aculeolos paucos mox deciduos
gerentibus stipato; sepalis 2-bus
orbiculatis rup. dctis. petalis 8-10
spathulatis, emarginatis; flava inerma,
subglobosa
caroliter tuberculata subsarmosa flava inerma,
multiflora ~~late~~ ~~cymosa~~ cymosa, infundibuliformi;
2-bus
seminibus regularibus, tomentosis
lucari.

From the high plains
waters of Jemez to the head
of Bill Williams fork 4-6 feet high

L. Lacerior, ~~aculeis~~ inermior
aculeis brevioribus paucioribus
semper p. minoribus
Ipomoea elatior
aculeis pluribus, longioribus,
pannulis majoribus.

~~Fourth~~

Dr Bigelow found the lower variety
a fourth elevated route about
Jemez to the head of Bill Williams
fork, at first only 8-15 inches
high, subpurtate, afterwards
20-30 inches and sometimes
even 5-6 feet high; the shoots
and with the second, taller
season 8-10 feet high
and from there to the Santa Cruz
River & Tucson; and further
east. — Fl. in June. —
Stem as above, stalks of different
heights; joints elongated.
2-4 inches to a foot long,
1/2 or 3/4 inch in diameter;
Tubercles acute or sometimes
almost thornlike; —

* Vigna skeleton tuberous
with small nodules,
at base finally
Quasi

about ½ lin long; spines very
variable, sometimes only 1 with one
longer one & 2 or 3 smaller spines,
in other instances, especially in β
with 12 or 14 spines; spines
3–9 lin long; bristles few,
generally only on older joints;
flower of β (that of α not seen)
1¼–1½ in diam; ovary 6–9 lin long,
with 20 or 25 pubilli, spines on the
tube about 3–4 lin long, ~~dried~~ soon
disappearing; fruit (of var α)
~~ovate~~ ½ inch long a little less in
diam some what fleshy & sweet,
~~with~~ 25–35 ~~tubercles~~ not very
prominent tubercles; seeds
with circular or obtuse lines
commissure, 1½–1¾ lin in diam
colyledons regularly incumbent
or sometimes oblique. The seeds
of β are nearly 2 lins in diam.
This species is easily distinguished
from all our other allied
species by the ~~short~~ thick elongated
branches, the short crowded
tubercles and the short spines

This is undoubtedly the species which
Engelm Report I had named
O. Californica; but as the
name has become inappropriate
I change the name of O. Whipplei

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Cereus. Haw Ovarium baccaque
sepalis squaciformibus sepe vix
conspicuis vel deciduis axilla
plerunque ~~pilosa~~ (Parum aculeatos ve gerentibus)
staminæ ~~numerosa~~ tubo brevi s. elongato
adnata, nigra rubra seminæ exalbuminosæ
colyedres ~~excentricatæ~~ plerunque
plus minus hamatæ.

a. ~~Echinocereus~~ E. in Ind Rep.
1848 ~~Salm in Hort Dyck 1850~~.

Plantæ costatæ subglobosæ s.
plerunque elongatæ sæpe gigantææ,
rectæ, flexuosæ s. tortuosæ,
inflorescentia lateralis.

a. Echino cereus E. in Ind
Rep. 1848 Salm in Hort Dyk 1850 —
Humilis e basi ramosus sæpe
cæspitosus, ~~floris~~ polyphyllis tubum abbreviatum
~~pauciaculeatus~~, stigmate lacte
viridi, barra aculeolata perigonio
marcescente coronata; semina
parva nigra, tuberculata s.
tuberculato — excepta, colyedrea
abbreviatæ subcrectæ.

Plantæ boreali Mexicanæ texanæ &
b. Cereus Mig. elatior
s. elongatus, floris (tubus) polyphylli
elongatus, stigmate pallido (an semper)
barra squamata s. aculeolata
semine majora — nigra Cacti
s. saxis rugosa; colyedres hamatæ

c. P. Coloreus Lem. elatior,
floris tubus oligophylli tubus brevior
stigmate pallido (an semper?) barra
~~pauci~~squamata semine nigro Cacti
(auctor.) s. hamatæ (P. Schottii).

Flows diurnal only with
the exception of the small
section of Cereanei
The most northern Cerei
extend to lat 36 north.
with few exceptions confined to
the Rio Grande valley
surrounding adjacent region
probably several subgenera
will have to be separated
for this large number
of very diversified species

flores ex reptilis proprio (aculeis
approximatis aculeis plurimis
semiovatis elongatis distinctis)

colyedres ~~globosæ~~

Opuntia Tourn

Ovarium ~~barraque~~ sepaliis foliiformibus
~~aequantibus~~ deciduis ad axillam pulvilligeris ~~apicem~~ retrorsum
~~stipatum~~; floris tubus ~~obbrevatus~~ brevissimus.
sepala petalaque rotato expansa,
s. hypocrateriformia; bacca carnosa pulposa ~~siccata~~
s. sicca, pulvillis villosis setosis
s. aculeatis stipata; flore (plerumque profunde latoque umbilicato
s. radiiflora parvescente coronata deciduo)
~~coronata s. plerumque deciduo~~
~~umbilicata~~ semina magna compressa ~~subobovoidea~~
discoidea ~~subcuneiformia~~
~~reniformia~~ saepe marginata albida ~~albuminosa~~
Cactearum ~~Cotyledonia~~ foliacea, ~~costa~~ albumen curvatum
dorsumbentibus

Plantae articulatae articulis

~~cylindraceis~~ lanatis
~~compressis~~ s. ~~plerumque~~ ~~tenuibus~~ globosis elevatis s.
tuberculatis ramosis
foliis tubulatis. Pericarpium caducum (cylindris
plus minus tuberculatis
ad axillas dis corum = axillam pulvillos
villosos setosos ~~s. aculeiferos~~ et saepe
aculeatos gerentia. Flores brevi tempore
s. deciduae in sylvis pulvilli puto ~~apice~~ ~~obtecti~~ ~~barbati~~ retrorsum aculeolati
Pulvilli aetate antici, robustiores in inferiore medioque pulvillo) s. serati
flores ex articulis anni prioris
plerumque grandes flavae aurantiacae ~~purpurascentes~~
vel purpurascentes ~~sterio concavo~~ plerumque
~~meridie volen~~ per plures dies apertis nocte clausis
~~carnosa~~ ~~et~~
bacca saepe edules ~~succosa~~.

germination all cylindrical!

Opuntiae stenopetalae

Subgen. Stenopetalae antica Stamina complanata.
petalis tubulatis, paucis erectiusculis.
stigmatibus paucis, antice Seminibus ? Gladiformibus

Opuntia grandis Hort. Angl, vide

Salm Dyck 237. petala 12 angusta convoluta
6 lin longa aurantiaca

Erect, high, joints 5-7 inches long 2-3 broad
areolae with blackish bristles and 2 two
white spines, fl. 9 lines in diameter, Stigmata 2-3

Mexico

Opuntia stenopetala n. sp. prostrata articulis
magnis ovatis pubescentibus ad margines conferticis
fusco setulosis, aculeis compressis
arc. pil. 6-8 sub 3 curvatis deflexis
s. patulis 1-2 pollicaribus adjectis
saepe 1-3 minoribus, omnibus
atro fuscis; floribus (pollicaribus)
ex areolis fulvo villosis
ovario obovato, tuberculato, pulvillis fuscis 30-40
confertis albido tomentosis setis fuscis pu
stipato - sepalis tubi pulvilique
sub. 25 - ~~exacte~~ tubulatis acuminatis
exactis vix semipollicaribus erectis
staminibus numerosis, inaequ
tubi Basi tubulosa, ovario,
stylo medio ventricoso ~~staminibus~~
~~subbrevior~~ apice indivisio, stigmatibus
staminibus subbrevioribus.

On the battle field of Sacramento Valley
south of Chihuahua, north Mexico
Dr J. Gregg. 1848 July — The
specimens before me
consist of segments of joints,
from which it can be inferred
that the joints were very large, perhaps
7-8 inches in diameter with
the pulvilli perhaps 1/2 inches
distant, but very crowded
towards and on the edge
with much dirty white wool and a
short Dark brown brittle, and very
dark almost black spines with
lighter tips: stouter spines
1/2-2 inches long, flat on the upp
rounded on the lower side, often
very much curved.

Arista acuminis

Yellow flowers

Floriferous pulvilli very ~~much~~ woolly,
Tuberculate very obtuse 9 l. long,
leaves on the tubercles divaricate, very
slender 2 - 2½ l. long; sepals &
petals 4-6 lin long, fleshy very
bluntly acuminate, the former
greenish, turning to red, the latter
orange colour; filaments nearly
half as long as the petals; style
very much inflated in the middle, more
than in any Op. Cuneatus seen by me
and to all appearance (I have
carefully examined about 6 flowers)
with a single ~~acute~~ stigma —
solitary instance
an unique case in the whole genus. —
No fruit or seed was obtained. —

not more than one half brown at base

It is interesting to find in
Op. Grandis mentioned above
which has long been cultivated in
the European gardens ~~but~~ but which
only lately flowered for the first time here
in Kew Gardens a very similar plant
the flowers of which seems also
to be distinguished from ours only
by the 2-3 (and not single) stigmats.
But the plant is erect, pretty
smaller, pulvilli with 2 white spines.

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Opuntiae cum petalae

petalis spathulatis, obovato-
obtusatis saepe obovatis

Subgen. 2. Platopuntia

§. Opuntiae articulis complanatis, (ellipticis obovatis), s. subobovatulatis, floribus majoribus, magnis vé-
bracteis plus minus pulposa
§. sessilis sacpius edulibus, saepius
seminibus latis, magnetis s. ani-
natis; caulibus plus quam
cylindricis, rarius albumen parcum
spiraliter convolutis, cotyledonis
semper contrariis.

Plantae erectae, §. procumbentes saxicolae, §. saxicolae, §. tuberosis.

§. 1. Microcarpeae

Opuntia Strigil n. sp. suberecta, articulis ovatis, obovatis, s. orbiculatis obtusis s. subinde subacutis, tenuibus pubillis confertis junioribus albido villosis, mox setis diffomibus stramineis stipatis omnibus aculeiferis; aculeis 5-8 radiantibus deflexis versus articuli margines rarn 1-2 robustioribus longioribus porrectis erectis, patulis s. subdeflexis omnibus rufo-fuscis versus apicem flavidis; bacca parva subglobosa late umbilicata areolis 25-30 minutis stipatis, nubilla, seminibus parvis ovoideis obtuse marginatis.

suberecta articulis mediis, caulis plurimis obovatis, valentissimis, baccis subglobosis parvis

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Western Texas, on the Mountains, in
crevices of flat Limestone Rocks near
Cedar Buttes (Wright) 60 miles west of the
Pecos — " Plant 2 feet high, "
pale green, ~~with~~ closely covered
with numerous pulvilli, each with
a bunch of bright redbrown, stiff
paler spines, which give the plant
a very bright and showy appearance
Spines 4-5 lines long 3/4-4
wide, rather thin. Pulvilli 4-6
lines distant, prominent; the whitish
wool soon disappears leaving the spine
covered for the greater part with
fine pale yellow bristles, a dozen of which are
longer than the rest radiating upwards & sideways
and joining the ~~lower~~ radiating
spines, forming with them a
perfect circle, Spines on next
areolæ 5-8, on the lower ones
as usual fewer, shorter and paler,
on the upper and many, but ones
more perfect, exterior, radiating spines 3-4 l.
lower ones 5-8 lines long. ~~towards~~
the more perfect areolæ towards
the edges and upper end of the joint
have 1 or 2 stouter somewhat
compressed spines, 10-12 lines in length.
deep brown below, bright redbrown in the
middle, gradually fading into ~~bright~~ yellow
at the point. — flowers unknown

Fruit 6-7 lines long, about 6 lines
wide with a broad and flat umbilicus,
areolæ small, with grey wool & a few
bristles

Seed 1/2 line long, rather irregular, very thick, with a blunt rim. All the specimens brought home of this showy species were dead, and it would be very desirable to obtain living plants or ripe seeds — The flowers also ought to collected — which could easily be done by the travelers on the now well frequented road from between San Antonio and El Paso.

§. 2. Grandes

articulis magnis, pulvillis distantibus, ovalis compressis plerque rotundatis; ovariis abbreviato obovatis petalis spathulatis flavis v. basi miniatis — This includes the Tulvispina & Flavispina of Eng. baccis plerumque magnis

× Erectae plantae erectae

caulibus strictis pallidoribus ve, versus basin rufis v. fulvis

Opuntia Engelmanni Salm

see pag 83.

Hort Dyck. 1850 pag 235 erecta grandis, caule demum lignoso, teretiusculo cortice cinereo vestito, articulis obiculato-obovatis v. obovatis, magnis, pallide viridibus pulvillis remotis rigidis griseo tomentosis, setis flavis valde inaequalibus, aculeis paucis (in areolis superioribus plerumque 2–3) validis compressis v. angulatis rectis v. subinde curvatis, deflexis v. varie divergentibus, stramineis corneisve basi rufis, cum adventitiis superioribus uno altero gracilioribus pallidioribus, saepe deficientibus;

floribus flavis, intus rubellis, ovario
obovato ~~subglobosa~~, s. raris longato
obovato-clavato, ~~pubescibus sub 25~~
sepalis e basi late subulatis (3-4 mm lg)
et pubescentibus griseo s. fulvo tomentosis sparsis-setosis
20-25 instructo, sepalis ~~ovatis~~ ovato 6/3
extensoribus ovato lanceolatis acuminatis,
intensoribus obovatis ~~obovato~~ ~~cuspidatis~~
petalis 8-10 orbiculato obovatis, subpatentibus
obtusis mucronatis; stylo crasso ~~subinclusis~~ exsertis
stigmatibus 8-10 erectis;
baccis globosis, obovatis s.
raris ~~subpyriformis~~, late umbilicatis,
semini bus reniformibus, subirregulariter
plerisque acute marginatis.

A stout, coarse looking
plant, ~~with~~ found from ~~Texas~~ the Canadian to the Rio
Brazos, Texas and to the mouth
of the Rio Grande & northward
to the ~~Pecos~~ El Paso and Chihuahua, ascending to the Rocky
4-6 feet high, lower part of stem
ligneous of a very loose fibrous
reticulated texture, with a gray
bark, covered with lichens,
about 6 inches in diameter;
Leaves in the larger specimens
a foot long and 9 inches diameter, leaves
petiolate 1½-1½ inches, in the smaller
3-4 C. in diameter; petiolate, petiolules
3-4 lines long
very unequal, coarse, and sparse
~~not~~ or at least not as dense
as in many other species
toward ones, on the upper edge of the

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pubescent 4–6 lines long
spines 1–1½ inches long; small
lower ones ½–¾ inches long &
flowers 2½–3 inches in
diameter; characterized by
the usually short ovary and
the comparatively narrow
and not emarginate petals,
both of which characters I believe
occur in all the sections
(Grandes).

Ovary usually 1–1¼ inch long,
almost globose, sometimes
as much as 1¾ inches long, clavate;
fruit subglobose pear-shaped
~~nearly same shape~~, 2 inches
long, 1½ in diameter, nearly
non-elongated; umbilicus
dark an inch in diameter,
flat or little depressed;—
fruit of a dirty purplish color
usually with a deep bright
purplish pulp, which has
~~a disagreeable odor~~
a rather insipid and somewhat nauseous taste.

Seeds usually less than 2 lines
in diameter; in most specimens
seen by me 1.5–1.7 lines,
of a regular (kidney Ass Grande)
or nearly irregular twisted shape
with an obtuse or nearly more
acute ~~flat~~ very broad rim.

Young plants raised from
seeds are characterized from
all the others raised by me
by the fascicles of 4 long & very fine & long (1 inch)

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hair on the pulvilli, which appears in the second year and is retained for several years.

A specimen collected by Mr Wright on the Limpia has from 1 - 6 mostly curved, stout spines on the upper pulvilli of the large joint, but none at all on the lower, and very few and short bristles only.

Formerly (Plant Lindh. II p. 207) I distinguished a form of this species under the name of O. Lindheimeri (see pag. 82 & 161.) principally characterized by the elevate elongated, ~~fruit of the large~~ (2 - 2½ lines long by 2/4 - 1 line thick) deeply umbilicate fruit and the large seed (over 2 lines diameter). But it seems that a hybrid form between O. Engelmanni and probably some form of O. Rafinesquii occurs about New Braunfels, with of large subcrect, petaloid growth, with compound yellow spines but flowers and fruit analogous to O. Rafinesquii. The Lindheimer has no doubt that many transitional forms, owing to hybridization occur ~~about~~ in his district and that these intermediate forms (pag 161.) gentile seeds is undoubted, but it is impossible to consider these forms as transitions between two forms of a single species. — We know that numerous hybrids exist among many natural

wild plants when the species are nearly allied, as Hieracium and Cirsium not to speak of the ~~difficult~~ difficult genus Mentha in Europe or Verbena in the United States, often the most distinct species are so distinct as well characterized. We also know that Horticulture art has produced many hybrids among Cultivated especially Cereals. why then should it be improbable that Nature in its exuberance should not bring forth ~~for the wild domain of the world~~ not only hybrid forms, and that these hybrids should bear fertile seeds (perhaps again with help of insects applying the pollen of one of the parent plants) is by no means unexampled occurrence. — It is quite possible that many forms of the Garden not only of this but also of other genera of Cucurbitaceae are such natural hybrids which continue to propagate by slips cuttings.

One of these hybrid plants raised here (Illustration) from ~~seeds~~ Mediterranean seeds forms a bank of

with the assistance of the thereto pertinents of the Water carriage

3 feet diameter at 1½ feet high; the joints are 6–7 inches long, the bristles on the pubilli are brown and more even and closer together than in O. Engelmanni; spines 1–2 yellowish or brownish at base somewhat ~~lightly~~ compressed; flowers 3½ inches diameter, yellow, with base of ~~rounded~~ pointed petals and filaments red; ovary 2½ inch long, — ~~the flowers~~ the ovary is ~~of one flower~~ are often sterile, and degenerate brown pericarpellidiferous, in one instance it goes through into a bud point 2½ inches with 4 inch long, with the ovarian cavity absent abbreviated, but the other parts of the flower perfect.

I have no means to ascertain how far southward into Mexico this plant extends, ~~but~~ although it has been ~~heard~~ to Europe by some former collector. Prince Salm thought that it might resemble too much Op. Karwinskianus Salm, of Mexico, but this has narrowly attenuated joints, the older ones with 12–20 spines in a bunch, of unequal size, ashy when young, ashy when old. — pubilli small, subimmersed.

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Opuntia Engelmanni var? cylindrica
Eng & Big erecta 4 pedalis,
articulis arbiculatis crassis
pubescentibus remotis (prisco tomentosis
setis que straminéis flavidis rigidis
inequalibus, justantis, aculeis
validis rectis rigidis compressis,
summis basi fuscis deflexis,
fructu globoso pallidè
late umbilicato; seminibus
late
compressis, undulato marginatis

On Hathaway Creek, near
the mouth of the Gallinas in
Lincoln Co. New Mexico. Sept 25,
1853. — This is probably
Plant 4 feet high, joints obovate
or even transversely oval, abt
2 inches in diam., pubescent
with appressed, large, white
bristles (3-4 l. Cyl) at the upper edge of
the pubescence and a stout
stout spine, 1¼ - 1¾ inches long
on the upper pubescent wh
1 or 2 additional ones of ½-¾
l. length. — Fruit globose
1 inch 1¼ inch in diameter
of purple colour. Seed
2.0 - 2.3 l. in diam, with
a broad & thick rostrate umbilicate rim.
The smaller fruit and the
circular joints distinguish this
plant from the southern form
to which it most probably belongs

Op. patula Salm pag 301

Missouri Botanical Garden
George Engelmann Papers

3 Angulis

adjectas saepe 1-2
superiores basi
pallidioribus

prope Anton Chico
New Mexico

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Opuntia dulcis E I would with some hesitation propose to name a form, of which however I have as yet very incomplete data, perhaps it is one of these hybrid forms mentioned above.

Dr Bigelow distinguished this form about Presidio del Norte and Eagle Pass as growing in a sandy bushes, about 2 feet high with joints smaller than O. Engelmanni / 1/2 the size / and smaller and very sweet and pleasant fruit, which taste is quite distinct yet in the dried specimens.

The three dried seeds which seem to belong here agree well in their characters. The plant may be described thus

Adscendens articulis obovatis, medio compresso, aculeatis, fruit 1½–1¾ with by 1 inch Dent umbilicus 3/4 inch wide, shallow; seeds 1.5 – 2 l. in diameter

basi crassa late umbilicata pallida, dulcissima, semi-libera, minoribus regulariter, angulo marginatis.

Mr Wright has sent from western Texas or southern New Mexico (locality not recorded) a dried joint with a flower which I can not refer to any other form but this. I describe it thus

Articulo late obovato pulvillis remotis griseo-tomentosis, setis flavidis diformibus, extensis, tenuibus, brevibus (unfortis subaequalibus)

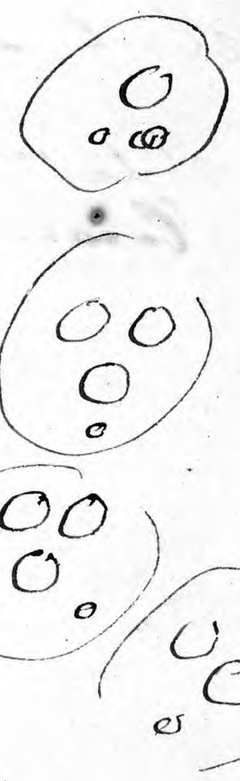
angulatis
compressis v. canaliculatis
subinde tortis,

~~inte~~ series intense, multo longiore,
robustiore; aculeis 2-3 majoribus
robustioribus ~~plerisque deflexis~~ adjunctis 2-3 ~~tenuiore~~
gracilioribus, omnibus plerisque
deflexis, cum alteriore stipitato
flocci flavi, ovario pallidi
pubellis 20-25 ~~fulvoloto~~ grisovillosis
et ~~fusco~~ nito setosis ~~strigosis~~;
~~pepulis~~ abortis, stylis obtusis
v. semiteretibus aristatis; stigmate
8.—

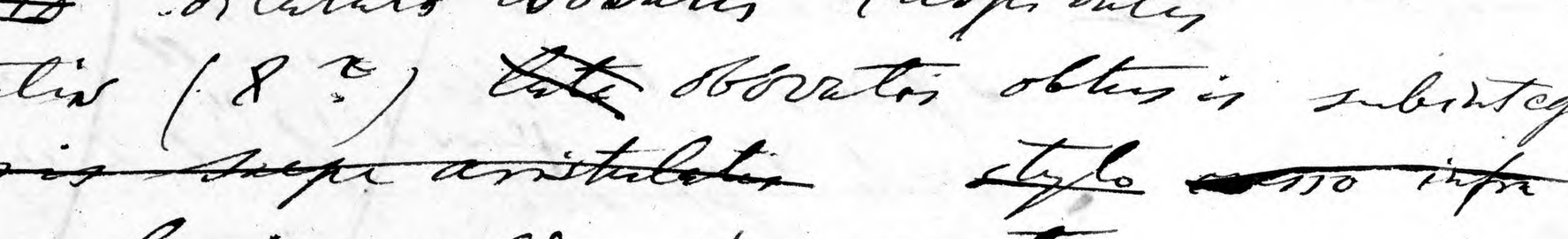
Only pink Cupressus macrocarpa known to me. pubellis
with dappart; with brownish
bristles, which form two distinct
series, especially on the upper
areolae; the upper, more numerous
fulvescens & shorter bristles are 1-1½ l. long,
covering the upper ½ semilunar area
of the pubellous areola; the
inside of this is a semicircular
series of stouter brighter brown
bristles. 3-4 l. long. This
arrangement I find again
among all our Cupressus
only in C. chlorotica.—
Spines much like those of
C. torulosa, ¼-1¾ inch
long, smaller on 3-9 l. long,
downy pubellis of Many mille
and with short bright redbrown
bristles, upper ones with much longer
(3-4 l. long)
Further investigation must be made
to elucidate the doubly

about the plant. Meanwhile
I have noted your plants from
some of the roads, and they
considerably resemble those of
O. Engelmanni, especially in
the hairy pubibilli mentioned
above — though the hair is by
no means as long as fine.

Opuntia occidentalis E. & B. see pag 89 & 296
erecta patulo - ramosissima, caule demum lignoso tereti corticato
grandibus obovatis rhomboidis ve;
pulvillis remotis griseo - tomentosis,
setis flavis & flavo - fuscis gracilibus
confertis, aculeis 1-3 validis
compressis angulatis rectis x.
~~subinde canalis~~ deflexis divergentibus ve,
uno allerove ad marginem
superiorem erecto albidis corneis ve subannulatis,
basi flavo - fuscis, ~~1~~ cum adventitiis 1-2
~~uno alterove~~ gracilioribus pallidioribus deflexis



~~flore flavo~~, tinctus ~~rubro~~
aurantiaco, ovario obovato ~~subglobose~~
pulvillis fusco - villosis vix setosis, fulvis
~~16-20~~ 26
~~16-20~~ notato, subinde pauce aculeolato
~~15-18~~ sepalis (extus viridibus nubellis) 10-12
~~15-18~~ dilatato obovatis cuspidatis
petalis (8 ve) ~~late~~ obovatis obtusis integris
~~erosis saepe antitabetis~~ stylo ~~crasso~~ infra medium
~~saepe basin valde incrassata~~
~~stigmatibus 7-10 erectis patulis~~, baccam
obovata, ~~pulpa~~, late umbilicata, succosa
seminibus majoribus irregularis,
undulato marginatis, crenulatis,



On the western slope of the California mountains from Cerro Gordo east of Los Angeles (Bigelow) to San Bernardo & San Isabel northeast of San Diego (Schott) at an elevation of 1000 – 2000 feet in immense patches often as large as half an acre. Fl. in June

↑ see pag 343

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From San Diego to Los Angeles
Dry hills and flats (Dr Parry)
On the seabeach (Mr Schott 1854)
in immense patches 40 miles east of Los Angeles (Dr Bigelow 1854)
Fl. July & October. — I am not absolutely certain that the same form is present has been observed by the 3 gentlemen mentioned above. both the former collected them near San Diego, and found it growing in patches 4–6 feet high, joints 6–8 inches long, 4–6 broad; spines reddish golden, inside greenish yellow (Parry) or yellow & orange red (Schott) * The description given above is from a dried flower obtained by Mr Schott from Dr Bigelow, his specimens not quite so tall, only seen as high as O. Engelmanni only 3–4 feet high " joints to which the above description refers 12 inches long 6 broad.

about 3 inches
O. arenaria
style unusually thick at base half, tapering upwards

1343 Ferocactus Emoryi 1½–2 inches diameter, slender bristly spines and closely set; spines 1–1½ inch long, flower see pg 343 fruit 2 inches long 1¼–1½ diameter with a very juicy and disagreeable taste * Lead 2½–2¾ l. diameter with a thick irregular rim.

much more so than in O. Engelmanni only 2–3 lines long,

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~~I believe~~ little doubt
that the San Diego specimens which
I forwarded the flowers, and the
Los Angeles ~~specimens~~ of joint
fruit and seed belong to the
same plant, and that they represent
O. Engelmanni of the Rio Grande
Valley on the Pacific coast.
Whether they are really distinct
remains to be seen; mean
while I would indicate as characteristic
the more elongated, often thornless
joints the very thin brittle
and the large seed. It may
also be remarked that the young
plants raised from D. Bigelow's seeds
fail to show the hairy pubescence
of all the young O. Engelmanni
seen by me. —

I have not been able to learn
whether O. Engelmanni extends
from El Paso westward ~~to~~ along the Gila to the Colorado.
Dr Bigelow did not meet with it
in his more northern (35°) expedition
but found other distinct species
nearly allied and representing
it in that latitude. —

Opuntia petula Schott pag. 297 seems to
be form of this plant, of which it has
the slender and dense bristles; it
grows on the western slope of the
Sierra Nevada. — —

see pg 343

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Opuntia Acrotica Engelm & Bigel

erecta grandis caule demum lignoso
-flavo
terete cortice cinereo aculeis flavis
numerosissimis pro-late annulato, articulis
obovatis — obovatis magnis, × pruinosis
subremotis griseotomentosis setis
stramineis validiusculis, exterioribus
brevioribus, ferrugineis, subaequilongis
confertis interioribus ~~uncinatis~~
robustioribus longioribus uncinatis
~~cum aculeis elatioribus~~ superatis
aculeis 3-6 in subareolis inferioribus
1-3 superioribus 3-6 inaequalibus
omnibus stramineis, ✓ plus minus
(nec acutis angulatis) plerisque
obscure
deflexis, interiore subrecta erecta,
flore flavo, ovario tuberculato 20-30 pulvilligero
conferta — 20-30 stipitato, sepalis tubi 10-20
oblanceolatis, cuspidatis, petalis
15-20 obovatis apiculatis obtusis
mucronatis, stigmatibus 8 ~~petalis~~,
baccis obovatis, tuberculosis,
purpureis maturitate.

Banks of the Colorado,
from the San Francisco Mountains to the headwaters of Bill Williams
fork and to the Mojave creek.
— The only erect Opuntia of this
section in this ~~neighborhood~~
region of Country, 4-5-8
sometimes as much as 7 feet
high — forming large bushes or
one of which upwards of one hundred
joints were counted. ~~In the~~
The large stems have a scaly
grayish tan or light brown bark,

× pallide flavo-virescentibus v. subglaucis

the paleilli are not obliterated as in
Op Engelmanni, but are largely developed,
4-6 lines in diameter, densely covered
with a thick brown tomentum surrounded
by numberless long 4 l. slender straw-
colour bristles, and bearing 20-30
or more yellow ~~fl~~ unequal spines
of 1-2 inches in length, radiating in all directions &
whole surface of the stem. The only
Opuntia which I'd describe as having
a similarly armed stem is O. Kunzinskiana Sch.
which is said to have 18-20 gray spines
on the oldest paleilli.—

Joints 8-10 inches long by 6-8
inches wide, * paleilli about 1 inch
apart, strongly pubescent; bristly
~~at the upper and outer~~ arranged exactly
as I have described them in Opuntia
pag 317; on the upper and outer part
of the areola in a dense mass,
which is separated from the ~~spiniferous~~ lower
spiniferous part of the areola
by the a semi circle of longer coarser (4-6 l. l.)
bristles which unites with the outer
and shorter spines of the lower
margin; ~~&~~ Spines proper 1-1½
inches long pale straw coloured
with faint transverse markings,
hardly darker at base; Short
spines 4-9 l. long,

Flowers described from an
alcoholic specimen, gathered in
winter, seems pale yellow, about
between 2 & 3 inches in diameter, sepals &
Petals remarkably narrow, the latter

* always of a very pale glaucous or more rarely with yellowish green colour which is strikingly characteristic even at a distance during and has ~~been~~ procured the name or gave the plant.

3570

the latter about 1 inch long, and not
half as wide; — The ovary and fruit
(all the specimens found were sterile)
is quite tuberculous; pubescli
crowded, long brown wool and
short yellow bristles. — Spines of
sterile fruit seem 1/4 — 1/2 inch long

Note. These pulvilli areolæ of Opuntiae
combines the flor spiniferous and
floriferous areolæ which are
widely separated in Manillariae
united by a long groove in Coryphantha
by a short or almost obsolete one /
in Echinocactus, and which are
close together but distinct in
Cereus. The floriferous part of
the pulvilli of Opuntia is the upper
one, covered with bristles; from among
these bristles are surrounded
by them the flower or fruit
makes its appearance the spines
proper are always below it.
The tomentum of the floriferous
areolæ of Echinocactus and
Coryphantha is analogous to
the bunches of barbed bristles of
Opuntia and still more so to the
hairy or bristly ax. the of some
Manillariae (M. Goodridgii,
phellosperma, pusilla &c)
The spines themselves in Cactaceae
I take to be sem stipular
production, the leaf itself

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is distinct in Opuntia, and indicates by scales on the ovary of Cereus and Echinocactus, and in very young shoots of these plants; the tubercle of Mamillaria is a petiole in exuberant development usurping the function of a leaf; similar to the New Holland Acacias etc. The spiniferous & floriferous areolae are therefore very distinct organs, though often of similar appearance or united into one (as in Opuntia) the former is the base of the leaf with stipular development in the form of spines the other is the productive axilla.

xx Procumbentes plantae pulchrae v. procubitae v. adpressae, caulis striatis pallescentibus vix lepidibus v. foliis,

Op. procumbens E. & B. Prostrata articulis orbiculato obovatis grandibus pallide viridibus, pubellis remotissimis gisco tomentosis, setis flavis robustis valde inaequalibus, aculeis validis 2-4 subinde (in articulis vetustioribus?) 7-9 compressis angulatis inaequalibus, striatis v. pallidioribus, areis basin obscurioribus, saepe rufis persistentibus, deflexis.

From the San Francisco Mountains to the Canton Creek on the head of Bill Williams fork — Very similar to O. Engelmanni, from which I can hardly distinguish it, except by

†see next page

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the prostrate growth the even more
~~distant~~ distant pubvilli and
the stouter spines and sometimes
more numerous spines.

introduce in last page

F Joints 9–13 inches long 7–9
broad prostrate, always on edge
pubvilli 1½–2 inches distant
spis 1–2 (rules long); bristles
2–4 lines long comparatively stout.
No flower or fruit seen.

see pg 334

Opuntia Mojavensis E&B.
prostrata, articulis suborbiculatis
grandibus, pubillis remotis setis tenuibus fulvis,
aculeis 3–6 validis ~~elongatis~~,
~~plus minus curvatis~~ compressis
fuscis, deinde apice pallidioribus
elongatis plus minus curvatis,
adjectis infra 1–3 minoribus tenuibus
pallidioribus; ~~flores~~ pubillis
20–25 fusco setosis stipata.

anle angulatis
annulatis

On Mojave Creek, at
the time considered identical with
O. Columbia and not further
noticed. Only a few fragments
were brought home together with
a sterile fruit. Spines 1–2½
inches long bright brown stout
sterile fruit 1¾ inch long, obloy
pubvilli rounded towards the
upper end. — It is probably
a distinct species but the
material is too deficient
to permit me to do more than
to indicate it.

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Opuntia angustata L&B. prostrata
s. adscendens, articulis elongato obovatis
vrus basin versus angustatis, suberectis,
pubillis remotis, aspiséo-lomentosis
setis fuluis grantibus, aculeis
paucis (2-3) validis compressis, ~~dorso~~
albidis s. straminis versus
basin rufis s. fuluis adjectis
saepe usque 1-2 deliciosis
omnibus deflexis; baccâ
obovata tuberculata subcilla, late
profunde umbilicata, pubillis
24 stipata seminibus magnis,
subregularibus, late marginatis

From the neighborhood of Juni
(Inscription Rock) to Bill Williams
fork and ventured as far as
the Cajon Pass in the California
Mountains this well distinguished
species was observed. It was
found prostrate at the eastern and
western part of this district,
in the bottoms of Bill Williams fork
it ~~assumed~~ suberect; joints
6-10 inches long, and at the upper
third 3-4 inches wide, gradually
narrowed down and rounded
above; Tubercles ~~distant~~ oblong, quite
strongly pulvinate, 2-3 l. long, with
slender brown bristles di- spiny in
the eastern specimens, ~~stramineous~~ pale straw colored
or whitish, brownish only at the very base 1-1½ inch long
(sterile) fruit obovate subglobose 1-1½ inch long
with large pubills covered with ~~yellowish~~ brownish
wool and light brown bristles

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3571.

The specimen from Cajon pass has bright colored spines, with the lower half red brown, not so angular, at the upper end of the joint some erect spines about twelve. A ripe fruit was collected on this specimen from which the above description was taken; it is 1½ inch long nearly 1 inch — short, with the wide and flat umbilicus immersed about ½ of an inch; pubilli or tubercles elevated, about ¼ on upper part of fruit as 10 along the rim. Seeds 3 lines or more in diameter, much compressed with the rim broad, and almost curled. — The seeds have germinated, and the young plants grow vigorously.

This species can not be confounded with any of four species, from other southern Opuntias have similar elongated joints but are even and almost spineless, such as Op. Rhodantha tuberculata, bracteata, O. polyantha from Santa Barbara etc. seem similar but have smaller and more spiderous joints. —

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Cact. 83 — July 1856 — 329

Subscriptae

XXX. Rhipsalidinae

plantae adscendentes, v. diffusae, v. pendulae
aculeis minus conspicuis, subsetiformibus
subterticibus, floris v. atratis ~~exceptis~~

Opuntia macrocentra E. Arb. Brandegee

articulis ~~magnis~~ + suborbiculatis v. magnis + saepe purpurascentibus
tenuibus, + pseudoobovatis subremotis, ~~foliolatis~~ glochidiis gracilibus
obovato ovatis ~~foliolatis~~, setis caducis
gracilibus brevibus fulvis tomentum
griseum vix superantibus, ~~plerisque~~
gerentibus plerisque inermibus
superioribus solum marginalibusque armatis,
aculeis ~~longe~~ prelongis singulis
binisve validis plerisque ~~dimorphis~~
~~fuscatis~~, supra pallidioribus saepe
annulato-notatis, rectis v. vario flexuosis
inferiore subbrevore compressa
v. tamen teretiuscula, floris flavi
ovario ovato pubescente 20-25 phyllis fulvoque setosis
versus superiora ovarii partem congestis
sepalis tabe" circ 13 lanceolatis, exteriorib
obovatis acuminatis v. cuspidatis, interioribus
obovatis obtusis mucronatis,
stigmatibus 8, luteis
seminibus majusculis ~~ovatis~~
late obliqueque undulato marginatis.

Sandy ridges in the bottom of the Rio Grande above El Paso, also on the Limpio, ft. — May.

A remarkably stout, spiny plant 2-3 feet high, with joints large almost rounded, thickly compressed of purple joints, 5-8 inches long and 4-7 inches wide; leaves 2½-3 lines long

remarkably slender, obtuse
1/4–1 inch apart, lower ones twice
as close together, unarmed
spines on the upper margin
ones mostly 1 or 2, 2–3 inches
long brown half almost black.

Ovary 1/4 inch long, but
8 l. in diameter, ~~and~~ the
flower 3 inches in
diameter when fully ex-

The seed described and figured
has been sent by Mr Wright as
coming from the species, with few spines
1–3 inches long" ~~and is supposed~~
and undoubtedly belongs here.
It is 2.0–2.2 l. in diameter,
much twisted, rim quite undulate.
it very much resembles the seed
of some forms of O. phaeacantha.—

To this species our plant
bears a strong resemblance and
must perhaps be referred to it.
It seems to be distinguished as
at present advised by the
larger more orbicular, thinner
joints the more closely set
and more woolly pulvilli, the slenderer leaves
smaller number of very long
spines which are confined to
the pulvilli, at and near the
upper edge of the joint, the
ovary is more elongated, the sepals
narrower, the flower larger.

fruit not known; pulp
adhering to endocarp and
(not ripe?)

No living specimens of this
remarkably beautiful species
exist in our Gardens
the spines of which
greatly exceed in length all those of such as are called long
much
spined ones O. longispina
& O. macracantha, and it is much

desired that some of the numerous travellers or sojourners in the neighborhood of El Paso may introduce this and some other little known species in

Op. phaeacantha Eng in N. Fmd pag 51 1849
Mem Am Acad. vol IV.

see pag 67

diffusa, adscendens, articulis
obovatis v. obovato-orbiculatis crassis
v. glauco-viridibus
foliis ebracteatis subulatis,
subtetragonis subrecurvatis, obtusiusculis v. acutis
setas graciles flavo-fuscas stramineas v. fuscatas
tomentosas gracile plerumque longe-
gerentibus, plerisque armatis; aculeis
2-9 rectis superne plerumque teretiusculo
porrecto, ceteris plerumque angulatis v. compressis
deflexis, floris (bracteis inaequilongis)
fuscis v. fusco atris, versus
apicem pallidioribus; floris flavi
ovario vix pulposo brevi pubello
ad 20 tomentosis fasciculato setosis
versus superiorem ovarii partem
congestis; sepalis tubo sub 13
optimis late lanceolatis ceteris late
obovatis cuspidatis, petalis 8-10
late obovatis obtusis subemarginatis, stigmatis 8
barra oblongato-cylindrica
late umbilicatis vix pulposa subcilla seminibus
Divaricatis plerumque majusculis, subregularis
angustis marginatis plerumque ovato marginatis

3572

This species extends from Santa Fe down the Rio Grande to ~~for~~ below El Paso and is generally seen ~~near the~~ along bottoms of the River near clumps of bunches Such areas the Drifting sand. Fl. in May. —

α nigricans obovata, viridior pubiller. magis approximatis, acutis angulatis nigricantibus

β. brunea obovata glaucescens pubiller. remotis acutis longioribus obliquè angulatis brunneis.

γ. major foliorbiculata, major ~~foliosa~~ remotis, acutis brunnibus, patentibus, pallidis

var α was collected by Mr Fendler along the Rio Grande near Santa Fe. β. is the southern form of α found on Rocky eminences near Santa Fe (Fendler) and near Juni (Bigelow)

Plant α has joints 4–6 inches long by 3–4 wide, × pubescent above one inch apart, with brown prickles only the lowest ones spineless; large spines 1½ – 2 inches long, lower smaller ones ½ – 1 inch long; spines towards the base almost black. Flowers *) about 2 inches in diameter, ovary not quite an inch long; fruit 1½ – 1½

× leaves more slender 2 – 2½ lines long

× The flower described in N. Fendleriana belongs to O. missouriensis or an allied species, the exists considerable confusion among the flowers of Opuntia — Mr Fendler's collection

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